Remarks:

Reconsideration of the application, as amended herein, is respectfully requested.

Applicants appreciatively acknowledge the Examiner's confirmation of receipt of Applicants' claim for priority and certified priority document under 35 U.S.C. § 119(a)-(d). However, item 2 of the Office Action alleged that the present application was filed more than one year after the German Application, and thus priority cannot be based on that application. Applicants' respectfully disagree. Applicants' note that, as filed with on August 18, 2003, page 1 of the instant application, lines 7 - 9, stated:

> This application is a continuation of copending International Application No. PCT/DE02/00255, filed January 24, 2002, which designated the United States and was not published in English.

As such, a claim for priority to the copending International Application was made at the time of filing of the Application. **Note that the priority claims to both the PCT Application and to the German Application are listed on the filing receipt for the instant application.** Thus, the present application is a continuation of International Application No. PCT/DE02/00255, which claims priority from German Application No. 101 07 380.1, filed on February 16, 2001. Resultantly, priority for the instant application goes back to February 16, 2001.

Claims 1 - 2 and 4 - 7 are presently pending in the application. Claims 1 and 4 have been amended. Claim 3 was previously canceled.

Applicants gratefully acknowledge that item 5 of the above-identified final Office Action (the "final Office Action") indicated that claims 2 and 5 - 7 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In item 3 of the final Office Action, claim 4 was objected to on the basis of an informality. The concern raised in item 3 of the Office Action is addressed b the amendments made herein to Claim 4.

In item 4 of the final Office Action, claims 1 and 4 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by U. S. Patent No. 6,509,621 to Nakao ("**NAKAO**").

Applicants respectfully traverse the above rejections, as applied to the amended claims.

More particularly, item 5 of the Office Action stated, in part:

> The following is a statement of reasons for the indication of allowable subject matter: the prior art of record considered pertinent to the applicant's disclosure, whether taken individually or in combination, does not teach or suggest: impressing the write currents for the selected memory cell in each case in approximately a same duration and in a manner offset in time with respect to one another by half of their switching duration (see claim 2), impressing a write bit line current in the same direction as a write word line current, and in a delayed manner when writing a logic "1" (see claim 5), **the steps of rotating a magnetization direction as outlined in claim 7, lines 1 - 19.** [emphasis added by Applicants]

Applicants have amended claims 1 and 4 to recite, among other limitations, rotating a magnetization direction in three steps, which is a more broad statement of the subject matter of allowable claim 7. More particularly, Applicants amended claim 1 to recite, among other limitations:

> . . . **the timings of the impression of both the respective word line current and the respective bit line current being controlled to be offset to one another by a part of the switching duration of at least the word line current** for rotating the magnetization direction of the soft magnetic layer **writing a logic "0" and "1", respectively, in three successive incremental angular displacement steps**, wherein for writing a logic "0" that magnetization direction is rotated in three first steps in a first angular direction, and for writing a logic "1" the magnetization direction is rotated three second steps in a second inverse direction. [emphasis added by Applicants]

Similarly, Applicants have amended claim 4 to recite, among other limitations:

> . . . **said write circuit controlling the timings of the impression of both said respective word line current and said respective bit line current to be offset to one another by a part of the switching duration of at least the word line current** for rotating the magnetization direction of the soft magnetic layer of the respective memory cell **for writing a logic "0" and "1", respectively, in three successive incremental angular displacement steps**, wherein for writing a logic "0" said write circuit rotates the magnetization direction in three first steps in a first angular direction and for writing a logic "1" said write circuit rotates the magnetization direction in three second steps in a second inverse angular direction. [emphasis added by Applicants]

As such, Applicants' claims 1 and 4 require, among other things, that: 1) the times of impression of the currents by the word line and the bit line **are offset opposite one another by a part of the switching duration of at least the word line current**; and 2) the thus effected incremental angular **displacement of the magnetization direction of the soft magnetic layer being performed in three successive steps**.

The amendments to claims 1 and 4 are supported by the specification of the instant application, for example, by Figs. 3A - 3H of the instant application. See also, for example, page 12 of the instant application, line 10 - page 13, line 10 and page 13 of the instant application, line 25 - page 14, line 10.

Applicants believe that claims 1 and 4 are patentable over the **NAKAO** reference. First, Applicants maintain that Fig. 9 of

NAKAO and its associated description fail to teach or suggest, among other limitations of Applicants' claims, rotating a magnetization direction of the soft-magnetic layer in a respective direction **in several successive incremental angular steps**, in order to write a logic "0" or a logic "1".

Rather, taking Fig. 9A of **NAKAO** as a starting point, the magnetization of the free layer is rotated by approximately 180° **in exactly one step** by the currents of 1 mA flowing through the word line and the bit line. See, for example, Figs. 9A - 9E of **NAKAO**. This can additionally be seen from col. 9 of **NAKAO**, lines 56 - 61, which state:

> When a word line current I_{wx} of 1 mA and a bit line current I_{wy} of 1 mA are caused to flow through the word line pattern 22 and the bit line pattern 26, on the other hand, there is induced a writing magnetic field with the components δH_x and δH_y such that $\delta H_x = \delta H_y = 20$ Oe. **Thereby, there occurs a reversal of magnetization in the NiFe layer 15 within the short duration of 1 ns, and high-speed rewriting or erasing of information is achieved.** [emphasis added by Applicants]

As such, **NAKAO** discloses a high-speed rewriting invoving **a reversal** (180° change) within the short duration of 1 ns. As such, **NAKAO** fails to teach or suggest, among other limitations of Applicants' claims, **rotating the magnetization direction of the soft magnetic layer in three successive steps**, as required by Applicants' claims 1 and 4.

Further, as described in connection with Fig. 9C of **NAKAO**, after the reversal occurring in Fig. 9B of **NAKAO**, both currents in the word- and bit line are switched off (I_{wx}=0 and I_{wy}=0). See, for example, col. 9 of **NAKAO**, lines 64 - 67. **NAKAO** goes on to further describe the second inversion of the magnetization direction (from Fig. 9C of **NAKAO** to Fig. 9D of **NAKAO**) as being executed in exactly one step (i.e., wherein I_{wx}=0 and I_{wy}=0 are flipped in one step to I_{wx}= -1 mA, I_{wy}=1 mA). This is disclosed in col. 10 of **NAKAO**, lines 1 - 11, which state:

> Next, **in the step of FIG. 9D, the direction of the word line current is reversed and a word line current I_{wx} of -1 mA and a bit line current I_{wy} of 1 mA** are caused to flow through the word line pattern 22 and the bit line pattern 26 respectively, **and the magnetization of the NiFe layer 15 is reversed again** as represented by a white arrow therein, wherein the reversal of the magnetization occurs within the short duration of 1 ns. In the case of FIG. 9D, it should be noted that the word line current flows in the direction opposite to the word line current in the case of FIG. 9B. **As a result of the magnetic reversal, the information written into the NiFe free layer 15 is rewritten or erased with high speed.** [emphasis added by Applicants]

As such, **NAKAO** fails to teach or suggest, among other limitations of Applicants' claims, **rotating the magnetization direction of the soft magnetic layer in three successive steps**, as required by Applicants' claims.

For the foregoing reasons, among others, it is accordingly believed that none of the references, whether taken alone or in any combination, teach or suggest the features of claims 1 and 4. Claims 1 and 4 are, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claims 1 or 4.

Finally, Applicants appreciatively acknowledge the Examiner's statement that claims 2 and 5 - 7 "would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims." In light of the above, Applicants respectfully believe that rewriting of claims 2 and 5 - 7 is unnecessary at this time.

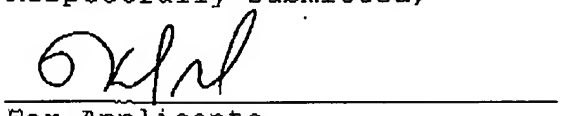
In view of the foregoing, reconsideration and allowance of claims 1 - 2 and 5 - 7 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out. In the alternative, the entry of the amendment is requested, as it is believed to place the application in better condition for appeal, without requiring extension of the field of search.

If an extension of time for this paper is required, petition for extension is herewith made.

Please charge any fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,



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For Applicants

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